

# EUROPEAN PATENT OFFICE

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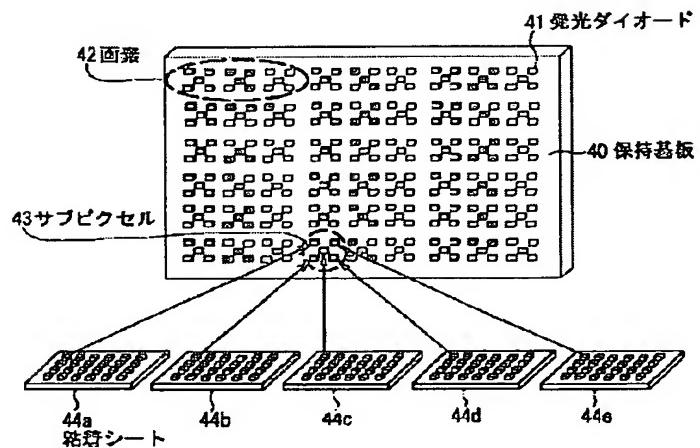
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TITLE : DISPLAY DEVICE AND METHOD OF  
MANUFACTURING DISPLAY DEVICE



ABSTRACT : PROBLEM TO BE SOLVED: To provide a display device that does not require pixel replacement even when defects occur in light emitting diodes used as display elements and hardly causes pixel missing and color shading in a displayed picture.

SOLUTION: In this display device, pixels each of which is constituted by combining sub-pixels emitting different colors of light rays with each other are arranged in a matrix-like state on a holding substrate. Each sub-pixel is constituted of a plurality of light emitting elements which emit almost the same color of light rays. In the display device, in addition, light emitting elements are formed on a plurality of semiconductor growing substrates and the plurality of light emitting elements constituting each sub-pixel is made to become light emitting elements grown by crystallinity on different semiconductor growing substrates by transferring the light emitting elements formed on the plurality of semiconductor growing substrates to each sub-pixel constituting a pixel on the holding substrate.

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**CLAIMS**

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**[Claim(s)]**

[Claim 1] It is the display which the pixel constituted combining the partial pixel which carries out different coloring is arranged in the shape of a matrix on a maintenance substrate, and is characterized by said partial pixel being constituted by two or more light emitting devices which emit light in an abbreviation same color.

[Claim 2] The display according to claim 1 characterized by forming said two or more light emitting devices on the same light emitting device package.

[Claim 3] The display according to claim 2 characterized by forming two or more 2nd semi-conductor growth phases, and forming said two or more light emitting devices on the 1st semi-conductor growth phase of the combination of said 1st semi-conductor growth phase and two or more of said 2nd semi-conductor growth phases.

[Claim 4] The display according to claim 1 characterized by two or more light emitting devices which constitute said partial pixel being light emitting devices by which crystal growth was carried out on a different semi-conductor growth substrate.

[Claim 5] The display according to claim 1 with which said two or more light emitting devices are characterized by being light emitting diode or semiconductor laser.

[Claim 6] The display according to claim 1 characterized by said two or more light emitting devices being semi-conductor light emitting devices which use gallium nitride as a principal component.

[Claim 7] The manufacture approach of the display characterized by having the process which forms a light emitting device on two or more semi-conductor growth substrates, and the process which imprints said light emitting device from said two or more semi-conductor growth substrates to the partial pixel of 1 which constitutes a pixel from on a maintenance substrate, respectively.

[Claim 8] The process which imprints said light emitting device from said two or more semi-conductor growth substrates to said partial pixel Furthermore, the process which carries out array immobilization of said light emitting device formed on said semi-conductor growth substrate on the adhesion sheet with which the glue line was formed, The process which enables exfoliation of said light emitting device which serves as a candidate for an imprint among said light emitting devices by which array immobilization was carried out from said adhesion sheet, The manufacture approach of the display according to claim 7 characterized by having the process which imprints the light emitting device which serves as said candidate for an imprint whose exfoliation was enabled from said adhesion sheet on the maintenance substrate with which it was prepared in other glue lines.

[Claim 9] Said glue line formed in said adhesion sheet is the manufacture approach of the display according to claim 8 characterized by heating the location corresponding to the light emitting device which consists of thermoplastics and serves as said candidate for an imprint in said glue line, and enabling exfoliation of the light emitting device used as said candidate for an imprint from said adhesion sheet.

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